

ON THE OCCURRENCE OF *NERITINA GRATELOUPIANA*, FÉR.
(HITHERTO MISIDENTIFIED AS *N. FLUVIATILIS*), IN THE
PLEISTOCENE GRAVELS OF THE THAMES AT SWANSCOMB.

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Read 13th March, 1903.

IN 1900 a new section was opened in the high terrace gravel of the Thames at Swanscomb, and yielded large numbers of mollusca as well as abundant remains of vertebrata. This was of great importance, since the horizon had hitherto afforded but very few bones or shells. The first account of this deposit was by the late Mr. H. Stopes,¹ whilst in 1901 we described the mollusca.² In these papers *Neritina fluviatilis* (Linn.) was recorded as occurring there in great numbers, it being in fact the commonest form. We had, however, our doubts as to the correct determination, and a close examination of thousands of examples convinced us of our error in referring the Swanscomb *Neritina* to the existing English species. Through the kindness of Mr. H. Preston examples were submitted to Dr. O. Boettger, and he at once identified them as *N. Grateloupiana*, Fér. (= *crenulata*, Klein), and stated that the form was represented in his collection from the Upper Miocene of Häder, near Dinkelscherben in Bavaria; Pflummern, in Würtemberg; and Neuberg-a.-Donau, in Bavaria; and from the Middle Miocene of Kosteg, Comitat Krassó Szörényi, in Hungary.

According to Sandberger,³ the species occurs in the Upper Miocene at Verres near Delsberg, Berlingen um Untersee, Mammern, Rath near Weiaach, Littenhaid near Wyla, Schwammendingen, and Käpfnach, in Switzerland; at Engelswies near Mösskirch, and Dettighfen near Thiengen, in Baden; at Deutschhof near Pflummern, Altheim near Ehingen, Heggbach, and Biberach, in Würtemberg; at Günzburg, Häufelsburg, Reisenburg, Landestrost, Häder near Dinkelscherben, and Schwenditobel near Pfrungen, in Bavaria; at Höflein, Hauskirchen, Feldsberg, and Brunn near Vienna, in Austria; at Radmanyest. in Hungary; and at St. Agata near Tortona, in Piedmont: while from the Lower Miocene he records it from Mandillot and Mainot near Dax.

The nearest living form is *Neritina Danubialis*, Mf. As we have already stated, it was the commonest shell at Swanscomb, occurring

¹ 1900. H. Stopes, "On the discovery of *Neritina fluviatilis* with a Pleistocene fauna and worked flints in High Terrace Gravels of the Thames Valley": Journ. Anthrop. Inst., vol. xxix (n.s., vol. ii), pp. 302-3. A second edition of the reprint, issued by the author in July, 1901, contains a fuller list of species found up to that date.

² A. S. Kennard & B. B. Woodward, "The Post-Pliocene Non-Marine Mollusca of the South of England": Proc. Geol. Assoc., vol. xvii, pp. 238-9.

³ "Land- und Süswasser-Conchylien der Vorwelt."

in countless myriads, the coloration being preserved in a very striking manner. A few examples are pure white, without any trace of markings, whilst in others the ground colour is almost obscured by the markings, and every gradation between these is met with. The average size is 9 mm. in height by 10 mm. in breadth, but exceptional specimens were 10 mm. by 13 mm. About 80 per cent. of the examples possess crenulations on the edge of the columella lip, but the size of the crenulations is by no means constant. It is remarkable that not a single example of the operculum has been found, though a careful search was made.

We have here an extremely interesting example of the imperfection of the palæontological record. Unknown in any deposit on the continent of later age than the Upper Miocene, it suddenly appears in the Pleistocene of the Thames Valley in countless profusion, and it is unknown in any later deposits, whilst the living English species, *N. fluviatilis*, though known from the Miocene of Germany, is quite unknown in these Islands in any deposit older than the Holocene. It is only within the last few years that these recent deposits and their contained fauna have received any adequate attention, and we venture to think that the problems they present are as interesting as any in the domains of malacological science.